

## **CLAIMS**

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is as follows:

1           4. The mail edge biasing machine of claim 1, wherein the plurality  
2           of compartments includes the central compartment and opposing side  
3           compartments.

1           5. The mail edge biasing machine of claim 1, wherein the feed  
2           head mechanism comprises:

3           a belt driven transportation mechanism having a plurality of  
4           suction ports; and  
5           a vacuum source in communication with the plurality of suction  
6           ports.

1           6. The mail edge biasing machine of claim 5, wherein the belt  
2           driven transportation mechanism is three belt driven transportation  
3           mechanisms adapted to transport the stack of products in opposing  
4           directions from the central compartment to the remaining compartments  
5           which are opposing side compartments.

1           7. The mail edge biasing machine of claim 6, wherein the vacuum  
2           source, via the plurality of suction ports, moves a product of the stack of  
3           products from the central compartment for transportation to either of the  
4           opposing side compartments.

1           8. The mail edge biasing machine of claim 1, further comprising  
2           moveable walls separating each of the plurality of compartments.

1           9. The mail edge biasing machine of claim 1, further comprising a  
2           plurality of belt drives for incrementally moving the plurality of moveable  
3           plates and the stacks of products.

1           10. The mail edge biasing machine of claim 1, further  
2           comprising a plurality of bottom elevator type moving systems for  
3           incrementally moving the plurality of moveable plates and the stacks of  
4           products, and which allows tops of the stacks of products to remain in a  
5           fixed plane relative to the feed head mechanism.

1           11. The mail edge biasing machine of claim 1, wherein the feed  
2           head mechanism includes an optical edge recognition system for detecting  
3           a bound edge of the product.

1           12. The mail edge biasing machine of claim 11, wherein  
2           information received from the optical edge recognition system is used for  
3           separately transporting products of the stack of products from the central  
4           compartment to the remaining compartments which are opposing side  
5           compartments, thereby orienting the stack of products on each of the  
6           opposing side compartments with bound edges in the homogenous  
7           orientation.

1           13. A mail edge biasing system, comprising:  
2           a general holding container divided into three separate  
3           compartments;  
4           opposing moveable guide walls separating the three separate  
5           compartments;

6           moveable plates associated with each of the three separate  
7           compartments, the moveable plates being adapted to move in either a first  
8           direction or a second direction;

9           a feed head mechanism positioned over a central compartment of  
10          the three separate compartments, the feed head mechanism including:

11                 an optical edge recognition system for recognizing  
12          differences in bound and non-bound edges of the products; and

13                 a movement mechanism for moving products positioned  
14          proximate a central moveable plate from the central compartment to  
15          opposing side compartments of the three separate compartments based on  
16          the recognition of the bound and non-bound edges of the products.

1           14. The mail edge biasing system of claim 12, wherein the  
2           movement mechanism is two belt driven systems and each of the two belt  
3           driven systems includes a plurality of suctioning ports for moving or  
4           elevating the products positioned proximate the central moveable plate.

1           15. The mail edge biasing system of claim 14, wherein the two  
2           belt driven systems are designed to move the products from the central  
3           compartment to the opposing side compartments based on the information  
4           received from the optical edge recognition system.

1           16. The mail edge biasing system of claim 13, further comprising  
2           a belt driven system for moving the moveable plates, wherein a central  
3           moveable plate is incrementally moveable towards the head feed  
4           mechanism and opposing side moveable plates are incrementally  
5           moveable away from the feed head mechanism.

1           17. A method of orienting a stack of products in a same direction,  
2 comprising the steps of:

3                 providing a stack of products in a central compartment;  
4                 incrementally moving the stack of products in the central  
5                 compartment towards a feed head mechanism;  
6                 detecting a difference between edges of a top product of the stack  
7                 of products; and  
8                 transporting the top product to one of two side compartments based  
9                 on the detecting step,  
10                 wherein all products transported to a first of the two side  
11                 compartments are oriented in a first same direction and all products  
12                 transported to a second of the two side compartments are oriented in a  
13                 second same direction.

1           18. The method of claim 17, further comprising repeating the  
2                 steps of claim 17 until the stack of products in the central compartment is  
3                 depleted.

1           19. The method of claim 17, wherein the product is elevated by  
2                 the feed head mechanism.

1           20. The method of claim 17, wherein the detecting step is based on a difference  
2                 in thickness between the edges to determine a bound edge and a non bound edge of the  
3                 top product.

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21. The method of claim 17, wherein the transporting step includes elevating the top product.

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